

## REMARKS

Claims 19 through 23 inclusive remain in the application. Claims 19 through 22 were entered by the previous Amendment and are amended herein. Claim 23 is a new claim now dependent from claim 20 and directed to a specific application of the invention, i.e. to the temperature determination of a boiler tube surface in the refractory furnace application discussed in the specification.

The Examiner had rejected claim 19 under 35 U.S.C. §112 in that claim 19 included the phrase “such as”; and referred to an illustrative instrument, namely, the “Mikron Infrared Company’s Model # 7200”. Applicant by this Amendment has deleted the entire phrase, “such as Mikron Infrared Company’s Model # 7200” from the claim. Applicant believes the claim with the aforementioned deletion is definitive and does not suffer by the removal of the phrase.

In support of the Examiner’s further rejections under 35 U.S.C. §103, the Examiner now refers to the Herring et al reference (USPN 6,144,031A) in view of Marshall et al (USPN 6,515,285B1). Applicant submits that the claims as now presently amended, or as newly included, patentably distinguish themselves over the cited references alone or in combination and that patentable subject matter should be found therein.

By this Amendment, the Applicant emphasizes that the instrument, capable of a dual function, can produce the “actual true temperature of the target surface(s) within an acceptable degree of accuracy”. As amended, this ability, to produce the actual true temperature, is noted as taking place, “at least in the higher temperature range ... in an environment where there is the presence of unwanted radiation from the surrounding background”, which unwanted radiation “[adversely] affects ... the determination of the actual true temperature”.

As amended, claim 19(d) has been modified to characterize more specifically the “spectral bandwidth” of the “pass band” of at least the “second band pass filter”. The “spectral bandwidth” is now claimed as “0.2um ... [about] the respective center wavelength ... approximating the known transmission wave length of the intervening media and/or the

absorptive wavelength range of the targeted surface.” This contrasts with the Marshall citation at column 31, lines 30 – 48, referenced in page 5 of the Office Action and which is cited verbatim immediately below.

Col. 31, ls 30-48

“This increased wavelength band of operation may allow any of the uncooled IR sensor devices to be used, for example, over two wavelength bands of operation. In particular, the uncooled IR sensor may be used, for example, in threat warning applications to provide a higher probability of detection and reduced false alarm rates by using the uncooled IR sensor over two separate and distinct wavelength ranges of operation such as, for example, 10 to 14  $\mu\text{m}$  and 4 to 8  $\mu\text{m}$ . Such operation of the device 104 helps to eliminate a problem called contrast inversion which typically results when various targets that have different temperatures and emissivities have the same radiant emittance in a spectral band of operation. Therefore, an advantage of this embodiment of the uncooled IR sensor including the wider band detector device is that it can be used over such separate wavelength bands of operation to improve performance by reducing false alarms and providing a higher probability of detection.”

As can be seen from above, the purpose of the two separate wavelengths is to act as a form of redundancy. In Marshall, the two wavelengths are used essentially, contemporaneously, siting the same target to avoid what is referred to as “contrast inversion” – again, all as part of the same operation. This contrasts with the present method invention where the two general bandwidths are used for two separate temperature ranges - for unrelated detections. Also, with the inclusion now in claim 19(d) of language characterizing “at least ... [the] second infrared band pass filter” as “having a pass band...having a spectral bandwidth of approximately 0.2 $\mu\text{m}$ ” centered about “a respective center wavelength... approximating the known transmission wavelength of the intervening media and/or the absorptive wavelength range of the targeted surface” (see specification, page 12, lines 11 – 21), the present invention further distinguishes itself over the references of record, including Marshall, none of which teach this element of the claim.

Step (f) of claim 19 has been modified to further characterize the step of programming the electronic means. The step is now characterized to include “storing data relevant to the environment and to a determination of the actual true temperature”. As amended step (f) “further ... [includes] programming a sufficient number of data processing steps wherein the adverse affect of said unwanted radiation on the determination of the actual true temperature is substantially minimized.” (See specification, pages 14 - 21). Although there is in general an alluding to the divisioning of a dual functioning instrument, the Marshall reference in no way

suggests either alone or together with Herring, or the knowledge of one of ordinary skill in the art, the claimed instrument which falls within the scope of the claim 19 as now amended.

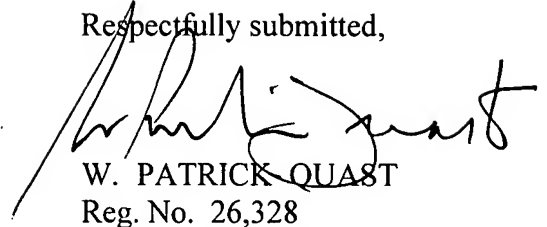
Claims 20, 21 and 22 have been amended to emphasize the spectral bandwidth, now identified in claim 19 as 0.2um, in relation to the center frequencies, namely, 3.9um, 5.0um and 6.8um respectively.

New claim 23, dependent from claim 20 wherein the center frequency is 3.9um and the spectral bandwidth is 0.2um about that center frequency, is directed to the specific embodiment referred to in the specification, i.e. the determination of the surface temperature of a boiler tube within a refractory furnace. Claim 23 emphasizes that the determination of the absolute true temperature, identifies several sources of unwanted radiation and notes as a further element of step (f), that the "data ... stored relevant to the environment includes a view factor coefficient for each of ... [the] view ports employed".

Further, Applicant submits herewith an Information Statement wherein three references cited in the pending EPO action are noted. Photocopies of those references are included. The primary reference, European Patent, EP 1174836 A2 speaks to a dual purpose device, but for the reasons cited herein as well as the response to the previous Action, should be found no more relevant than the Marshall reference cited by the Examiner.

A reconsideration and reexamination of the case and claims now placed before the Examiner is requested. Its allowance and passing to issue in due course is likewise, respectfully solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'W. Patrick Quast', is written over the printed name and registration information.

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